

By Express Mail
No. EM354519185US

Attorney's Docket No. 1781-73

PATENT

**REISSUE APPLICATION DECLARATION AND POWER OF ATTORNEY
(BY INVENTOR(S) OR ASSIGNEE)**

(complete A or B)

A. ☒ DECLARATION BY THE INVENTOR(S)

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name. I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter that is described and claimed in letters patent number 5,416,980, granted on May 23, 1995 and in the foregoing specification, and for which invention I solicit a reissue patent.

B. ☐ DECLARATION BY ASSIGNEE

NOTE: The assignee of the entire interest may make the declaration, if the reissue application does not seek to enlarge the scope of the claims of the original patent. 37 CFR 7.172.

(type or print name of declarant) (Title) of (Name of company or legal entity on whose behalf declarant is authorized to sign) declare that I am a citizen of Finland and resident of Finland that the entire title to letters patent number 5,416,980 for Method and Apparatus for Reduction of Curling of Paper in the Drying Section of a Paper Machine granted on May 23, 1995 to Heikki Ilvespää, (Inventor) is vested in Valmet Paper Machinery, Inc. (Name of company or legal entity) that I believe said named inventor(s) to be an original, first and sole inventor (if only one name is listed) or an original, first and part inventor (if plural names are listed) of the subject matter that is described and claimed in the aforesaid letters patent and in the foregoing specification and for which invention I solicit a reissue patent.

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No. EM354519185US**ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR**
(37 CFR §1.175(a)(7))

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims.

I acknowledge the duty to disclose information that is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent.

- ☐ In compliance with this duty, there is attached an information disclosure statement in accordance with 37 CFR 1.98.

PRIORITY CLAIM

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

(complete C or D)

- C. ☐ No such applications have been filed,
D. ☒ Such applications have been filed as follows:

**EARLIEST FOREIGN APPLICATION(S), IF ANY FILED WITHIN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO SAID APPLICATION**

Country	Application No.	Date of filing (day, month, year)	Date of Issue (day, month, year)	Priority Claimed
Finland	906216	Dec. 17, 1990	May 13, 1994	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No

**ALL FOREIGN APPLICATION(S), IF ANY FILED MORE THAN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO SAID APPLICATION****BENEFIT OF PROVISIONAL APPLICATION**

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**STATEMENT OF INOPERATIVENESS OR INVALIDITY
OF ORIGINAL PATENT
(37 CFR 1.175)**

That I verily believe the original patent to be

- ☒ partly
☐ wholly

inoperative or invalid because of error without any deceptive intent on the part of the applicant. (37 CFR 1.175(a)(6)).

The statement below specifies the errors relied upon, and how they arose (37 C.F.R. §1.175(a)(5)).

- ☐ why the original patent is believed to be wholly or partly inoperative or invalid (37 C.F.R. §1.175(a)(1));
- ☐ particularly the defects upon which the claim that such patent is inoperative or invalid "by reason of a defective specification or drawing" is based (37 C.F.R. §1.175(a)(2)); and or
- ☒ distinctly the excess or insufficiency in the claims that make the patent inoperative or invalid "by reason of the patentee claiming more or less than he had a right to claim in the patent." (37 C.F.R. §1.175(a)(3)).

- ☐ Corroborating affidavits or declarations of others accompany this declaration. (37 C.F.R. §1.175(b)).

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**STATEMENT OF INOPERATIVENESS
OR INVALIDITY OF ORIGINAL PATENT**

NOTE: This statement must:

- (1) include the reasons why the applicant verily believes the original patent to be wholly or partly inoperative (37 C.F.R. §1.175(a)(1));
- (2) particularly specify the defects, when it is claimed that the original patent is inoperative or invalid "by reason of a defective specification or drawing" (37 C.F.R. §1.175(a)(2)):
 - (a) distinctly specifying the excess or insufficiency in the claims when it is claimed that the original patent is inoperative or invalid "by reason of the patentee claiming more or less than he had the right to claim in the patent" (37 C.F.R. §1.175(a)(3)); and
 - (b) "particularly specifying the errors relied upon, and how they arose or occurred" (37 C.F.R. §1.175(a)(5)).

1. I verily believe the original Patent No. 5,416,980 (the '980 patent) to be partly inoperative because I claimed less than I was entitled to in that each of the independent claims (i.e. claims 1, 6, 18, 24 and 25) contains excess limitations that are not essential to the invention in view of the prior art.

2. The original claims are directed to a species of Applicant's invention for reducing the tendency of a paper web to curl by relaxing curl-inducing stresses formed or tending to be formed in the fiber mesh of the paper web as a result of asymmetric drying, said stress relaxation being accomplished through the application of steam. In contrast, the reissue claims are directed to the genus of controlling the tendency of a paper web to curl through the application of moisture to the web to relax the curl-inducing stresses formed or tending to be formed in the fiber mesh of the web as the web passes through the dryer section of a paper machine.

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3. The excess limitations in the original patent claims, pursuant to 37 CFR 1.175(a)(3) and MPEP 1414.01, are:

a. Each of the original independent claims, 1, 6, 18, 24 and 25, unnecessarily requires the application of moisture in the form of steam as a means to control curl. Although steam is a preferred medium for introducing moisture to the web to relax curl-inducing stresses in the fiber mesh of the paper web, the original disclosure is not so limited. Accordingly, newly presented independent claims 26 and 34 recite the application of moisture to control curl rather than be limited to one form of moisture, namely, steam.

b. Each of the original independent claims requires that the steam be applied to the bottom side of the web. The original disclosure does not require that the moisture be applied to the bottom side of the web. Indeed, Fig. 1 and column 5 lines 37 through 46 specifically disclose that the steam from steam boxes 30A and 30B may be applied to both sides of the web. Accordingly, newly presented independent claims 26 and 34 do not include this limitation.

c. Each of the original independent claims requires that the paper web be dried through the use of dryer cylinders of a drying section. Although dryer cylinders is a preferred embodiment of a drying section, the original specification is not so limited. Accordingly, newly presented independent claims do not require dryer cylinders as the only means for drying a paper web.

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d. Each of the original independent claims 1, 18, 24 and 25 requires the step of raising the temperature of the bottom side of the web by applying steam to the bottom side of the web. This limitation is particular to the use of steam as the moisture medium because the steam temperature is necessarily higher than that of the web in order to form steam condensate when the steam impinges on the web. The newly presented independent claims 26 and 34 do not require the step of raising the temperature of the bottom side of the web as is inherent when steam is used as the moisturizing medium.

4. The above described errors arose through inadvertence, accident or mistake and without any deceptive intent on my part during the prosecution of the application that matured into Patent No. 5,416,980. On information and belief, my prosecuting attorneys failed to appreciate the true scope of the invention disclosed in the original application and thus accepted claims of insufficiently broad scope to provide the patent protection to which my invention is properly entitled.

5. I became aware of the above-described errors when my co-workers approached me concerning their efforts in developing various means for applying moisture to an asymmetrically dried paper web to control curling of the paper web in a recently proposed paper machine having a pre-dryer section comprising all normal dryer groups with single wire draw. In about May of 1997 I learned from my patent counsel, Cohen, Pontani et al., who did not prosecute the original patent application for me but has analyzed the file wrapper of the original patent for the purpose of filing this reissue application, that I can obtain broader claims through

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a reissue application.

NEW CLAIMS AND DISCLOSURE SUPPORT THEREOF

6. I have presented herewith new claims 26 through 41 which are broader than the original patent claims.

7. I note generally that claims 1 through 25 of the original patent are narrowly drawn to one species of the invention described as a part of a preferred embodiment of the invention, i.e. the use of steam treatment for applying moisture to the web. To overcome this defect, newly presented claims 26 through 41 are generic to all applications of moisture to the web rather than limited to the species of steam.

8. Each of my newly presented claims is properly supported by the specification of my original U.S. patent and/or the English translation of my Finnish priority application which was filed with the original U.S. application.

9. The support for each of the newly presented claims are as follows:

10. Newly presented method claim 26 recites a method for reducing the tendency of a paper web to curl, comprising the steps of: (1) asymmetrically drying the paper web in its

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thickness direction to a solids content at which curl-inducing stresses have been formed or tending to be formed in a fiber mesh of the paper web; and (2) subsequently applying sufficient moisture to the asymmetrically dried paper web to relax said stresses in the fiber mesh of the paper web, to thereby control curling of the web.

a. Proper support for Limitation (1) is found, for example, in col. 7, lines 46 through 51 of the original U.S. specification, which states: "By means of the invention, it is favorably possible to accomplish a drying section in which, as groups with single-wire draw, only such 'normal' groups are employed in which the heated drying cylinders 20 constitute the upper row, in which case there are no ventilation or broke handling problems." It was earlier noted in col. 2, lines 61 through 65 of the original specification that "drying groups with single-wire draw ... do not dry the paper symmetrically, but the drying effect is applied more extensively to the face of the paper that reaches direct contact with the heated drying cylinders."

b. Support for limitation (2) is found, for example, in Fig. 5B and col. 8, lines 32 through 44 which states: "In the area of effect C ... D of the steam box 30, intensive condensation of water into the web W takes place, which is again followed by evaporation of water from the web W. As is shown in FIG. 5B, after the point C, the condensation of water steam is maximally of an order of 1 g/m² into the bottom face of the paper, at least locally. In this way, it is possible to correct even large defects in the moisture profile in the transverse direction, and, at the same time, strains that have already been formed in the paper and in particular in its face are relaxed by means of moisture and heat as well as by means of a

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temperature gradient (ΔT_2). " (Emphasis added.)

to relax said
Support for "stresses" in limitation (2) is found, for example, column 7, lines 18-22 where it is stated "By means of the steam treatment, strains that arise or are about to arise in the web W can be relaxed in the area of their formation or immediately after said area, in which case the relaxation is particularly efficient". Clearly, strains do not appear if there are no stresses to cause them. Thus, the relief of stress is inherently disclosed in this passage. Moreover, the English translation copy of my Finnish application (which was submitted with the original U.S. patent application), lines 7 through 9 on page 11 the following appears "The steam treatment is capable of inducing the relaxation of stresses developed or developing in the paper web W in the areas of their origin or immediately after such areas, in which case the relaxation is particularly efficient."

11. Newly presented dependent claim 27 recites that the step of asymmetrically drying the paper web includes passing the paper web through a plurality of normal dryer groups, each of said plurality of normal dryer groups including a single tier of dryer cylinders, a plurality of guide rolls disposed below and between said dryer cylinders, and a single-wire draw so that only one side of said web engages said dryer cylinders. Support for this limitation is found, for example, in col. 6, lines 8 through 14.

12. Newly presented dependent claim 28 recites that said guide rolls are suction cylinders. Support for this limitation is found, for example, in col. 1 lines 33 through 40.

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13. Newly presented dependent claim 29 recites that the moisture is in the form of steam condensate. Support for this limitation is found, for example, in Fig. 5B and col. 8, lines 26 through 34.
14. Newly presented dependent claim 30 recites that the moisture is applied across the entire width of the paper web. Support for this limitation is found, for example, in col. 5 lines 47 through 53.
15. Newly presented dependent claim 31 recites that the moisture is applied to the stressed web immediately downstream of the location where said stresses are formed or likely to be formed. Support for this limitation is found, for example, in col. 3 lines 60 through 68.
16. Newly presented dependent claim 32 includes a limitation that the stresses in the fiber mesh of the paper web are formed or likely to be formed at a solids content of at least about 70%. Support for this limitation is found, for example, in col. 2 lines 36 through 41.
17. Newly presented dependent claim 33 recites that the moisture is applied to the side of the web not engaging said dryer cylinders. Support for this limitation is found, for example, in Fig. 1 and col. 5, lines 37 through 46.
18. Newly presented apparatus claim 34 recites a paper machine, comprising: (1) means for asymmetrically drying the paper web in its thickness direction to a solids content at

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which curl-inducing stresses have been formed or tending to be formed in the paper web; and
(2) means for applying moisture to the asymmetrically dried paper web for relaxing said stresses to thereby control curling of the web.

a. Support for limitation (1) is found, for example, in col. 7, lines 46 through 51 and col. 2, lines 61 through 65 of the specification, as quoted above in connection with newly presented method claim 26.

b. Support for limitation (2) is found, for example, in Fig. 5B and col. 8, lines 26 through 34, as quoted above in connection with claim 26.

19. Newly presented dependent claim 35 recites that the means for asymmetrically drying comprises a plurality of normal dryer groups, each of said plurality of normal dryer groups including a single tier of dryer cylinders, guide rolls disposed below and between adjacent dryer cylinders, and a single-wire draw so that only one side of said web engages said dryer cylinders. Support for this limitation is found, for example, in col. 6, lines 8 through 14.

20. Newly presented dependent claim 36 recites that the means for applying moisture is disposed immediately downstream of said plurality of normal dryer groups. Support for this limitation is found, for example, in col. 3 lines 60 through 68.

21. Newly presented dependent claim 37 recites that the means for applying moisture

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extends across the entire width of the paper web. Support for this limitation is found, for example, in col. 5 lines 47 through 53.

22. Newly presented dependent claim 38 recites that the guide rolls are suction cylinders. Support for this limitation is found, for example, in col. 1 lines 33 through 40.

23. Newly presented dependent claim 39 recites that the stresses in the fiber mesh of the paper web are formed or likely to be formed at a solids content of at least about 70%. Support for this limitation is found, for example, in col. 2 lines 36 through 41 as quoted above.

24. Newly presented dependent claim 40 recites that the means for applying moisture includes a steam box. Support for this limitation is found, for example, in col. 4, lines 1 through 9.

25. Newly presented dependent claim 41 recites that the moisture is applied to the side of the web not engaging said dryer cylinders. Support for this limitation is found, for example, in Fig. 1 and col. 5, lines 37 through 46.

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No. EM354519185USCITED PRIOR ART

26. None of the prior art cited in the prosecution history of the original patent discloses or teaches the subject matter recited in newly presented claims 26 through 44. For example, the Skaugen reference (U.S. Patent No. 4,874,470), which was not listed on the face of the patent but was cited in the first office action (mailed Sept. 25, 1992) as a section 102(b) reference against my originally filed independent application claims 1 and 8, discloses the use of steam boxes 56, 57 in connection with suction rolls for heating the web in the press section of a paper machine. (See col. 5, lines 44-46). It is well known in the paper machine art that the press section performs a function that is substantially different from that of the drying section. The curl which is controlled by the present invention is induced in the dryer section which is downstream of the press section. Thus, whatever Skaugen intends by his invention, it has nothing to do with relieving fiber stresses induced in the dryer section. Thus, read in any light, the Skaugen reference simply does not provide any teaching or motivation to a person of ordinary skill in the art to employ the press section web-heating steam boxes in a dryer section for the purpose of applying moisture to the paper web in the manner recited in newly presented claims 26 through 41.

27. The Chusc reference (U.S. Patent No. 2,091,805), cited in the second office action (mailed June 15, 1993) as a section 102(b) reference, discloses a paper machine drying section having three dryer groups: two twin-wire draw dryer groups disposed in the main dryer (i.e. upstream of the press 4) and a third twin-wire draw dryer group disposed in the after dryer

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(i.e. downstream of the press 4). Chuse discloses that the paper web can be overdried and then conditioned to a narrow range of moisture content required for calendaring. The step of conditioning is performed by introducing moisture-laden air proximate the paper web as the web travels around the last dryer cylinder of the after-dryer prior to the step of calendaring. Chuse, however, does not disclose or teach a method of reducing the tendency of a paper web to curl, and he clearly was not in possession of such an invention.

28. References cited in the third office action mailed Dec. 23, 1993 include Skaugen et al. (U.S. Patent No. 5,175,945), Wywailowski et al. (U.S. Patent No. 4,663,398), Wedel (U.S. Patent No. 4,876,803), Walker (U.S. Patent No. 4,378,639), and Wells (U.S. Patent No. 4,249,992). None of these references comes close to suggesting an apparatus or method for treating a paper web which is asymmetrically dried in its thickness direction to a solids content at which curl-inducing stresses have been formed or tend to be formed in a fiber mesh of the paper web by applying sufficient moisture to the stressed paper web to relax said stresses in the fiber mesh of the paper web, to control curling of the web, as recited in newly presented claims 26 through 41.

29. In view of the above discussions, I conclude that the newly presented claims are neither anticipated nor rendered obvious by the prior art cited in the prosecution history of the original patent.

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POWER OF ATTORNEY

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

(list name and registration number)

MYRON COHEN, Reg. No. 17,358; THOMAS C. PONTANI, Reg. No. 29,763; LANCE J. LIEBERMAN, Reg. No. 28,437; MARTIN B. PAVANE, Reg. No. 28,337; MICHAEL C. STUART, Reg. No. 35,698; JAMES J. DeCARLO, Reg. No. 36,120; CAROL E. ROZEK, Reg. No. 36,993; EDWARD M. WEISZ, Reg. No. 37,257; KLAUS P. STOPFEL, Reg. No. 31,668; CHI K. ENG, Reg. No. 38,870; EDWARD ETKIN, Reg. No. 37,824; CHERYL COHEN, Reg. No. 40,361

(check the following item, if applicable)

☐ Attached as part of this declaration and power of attorney is the authorization of the above named attorney(s) to accept and follow instructions from my representative.

SEND CORRESPONDENCE TO:

DIRECT TELEPHONE CALLS TO:

(212) 687-2770

✓ Cohen, Pontani, Lieberman & Pavane
551 Fifth Avenue, Suite 1210
New York, New York 10176

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signature(s)

[X] BY THE INVENTOR

Full name of sole or first inventor: Heikki IlvespääInventor's signature *Heikki Ilvespää*Date 20/5/97
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☒ **BY ASSIGNEE OR PERSON AUTHORIZED TO SIGN ON BEHALF OF ASSIGNEE**

NOTE: Even though inventor(s) do not sign, complete above information for inventor(s).
(complete the following, if applicable)

Valmet Paper Machinery, Inc.
(type name of assignee)

Punanotkonkatu 2, 00130, Helsinki, Finland.
Address of assignee


Vice President for Industrial Property Rights
Title of person authorized to sign on behalf of assignee

☒ Assignment recorded in PTO on December 13, 1991
Reel 5954, Frame 0343.

☐ A separate ☐ "ASSIGNMENT (DOCUMENT) COVER SHEET"
or ☐ FORM PTO 1595 is submitted herewith along with the
assignment to Valmet Paper Machinery, Inc.

CERTIFICATION BY ASSIGNEE

☐ Attached is a "CERTIFICATE UNDER 37 CFR 3.73(b)," establishing the right of the assignee to take action in this reissue.



Signature of assignee or person
authorized to sign on behalf of assignee

(check proper box(es) for any added page(s) forming a part of this declaration)

- ☐ Signature for fifth and subsequent joint inventors. Number of pages added.
- ☐ Signature by administrator(trix), executor(trix) or legal representative for deceased or incapacitated inventor. Number of pages added.
- ☐ Signature for inventor who refuses to sign or cannot be reached by person authorized under 37 CFR 1.47. Number of pages added.
- ☐ Statement of inoperativeness or invalidity of original patent, 37 CFR 1.175. Number of pages added.
- ☐ Authorization of attorney(s) to accept and follow instructions from representative.
- ☐ Corroborating affidavits or declarations of others. 37 C.F.R. 1.175(b).

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PATENT

REISSUE APPLICATION BY THE INVENTOR, OFFER TO SURRENDER
(37 C.F.R. 1.178)Assistant Commissioner for Patents
Washington, D.C. 20231

The undersigned applicant of the accompanying reissue application for the reissue of letters patent for the improvement in Method and Apparatus for Reduction of Curling of Paper in the Drying Section of a Paper Machine Patent number 5,416,980 granted to him/her on May 23, 1995, of which

☐ he/she is now sole owner,☒ Valmet Paper Machinery, Inc.

is now sole owner by assignment, and on whose behalf and with whose assent the accompanying application is made,

hereby offers to surrender said letters patent.

Filed herewith is an

☐ abstract of title, duly certified,☒ order for a title report

as required in such applications.

20.5.97

Date



Signature(s)

Heikki Ilvespää

(type or print name(s))

CERTIFICATION UNDER 37 CFR 1.10

I hereby certify that this correspondence and the documents referred to as attached therein are being deposited with the United States Postal Service on this date _____ in an envelope as "Express Mail Post Office to Addressee" service under 37 CFR 1.10. Mailing Label Number EM241683494US addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231.

Signature _____

(type or print name of person certifying)

NOTE: Each paper or fee filed by "Express Mail" must have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 CFR 1.10(b).

WARNING: Certificate of mailing (first class) or facsimile transmission procedures of 37 CFR 1.8(a) cannot be used to obtain a date of mailing or transmission for this correspondence. 37 CFR 1.8(a)(1)(A).

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ASSENT OF ASSIGNEE TO REISSUE

The undersigned, assignee of the entire interest in the above-mentioned letters patent, hereby assents to the accompanying application.

CERTIFICATION BY ASSIGNEE

- ☐ Attached is a "CERTIFICATE UNDER 37 CFR 3.73(b)," establishing the right of the assignee to take action in this reissue.

Date: May 20, 1997


Signature of assignee

Name: Jouko Yli-Kauppila

Title: Vice President for Industrial Property Rights
(type or print name of signatory and title
if signing on behalf of an entity)